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HISTORY OF THE AMERICAN RECORD OF SCIRPUS MUCRONATUS.

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In an article by Dr. N. L. Britton, entitled *New or Noteworthy North American Phanerogams*, published in 1888,[1] there appears the note: "*Scirpus mucronatus*, L. This Old World species was collected over twenty years ago in Delaware County, Penn., by Mr. C. E. Smith and Dr. George Smith, and appears to have since lain unnoticed in our herbarium, which is to a certain degree my own fault, for there is a specimen in the Torrey Herbarium dating back to 1864...."

This record was carried forward in 1890 in Watson and Coulter's edition of Gray's *Manual* where the species is credited to "a single locality in Delaware Co., Penn."; also in 1896 in Britton and Brown's *Illustrated Flora* — "In a swamp in Delaware County, Pennsylvania"— and in 1901 in Britton's *Manual*. In 1903 in Porter's *Flora of Pennsylvania* the species was recorded from an additional county — Chester. In Keller and Brown's *Flora of Philadelphia and Vicinity* in 1905 the original station in Delaware County was more definitely noted as Rhoads' Swamp, on the authority of Benjamin H. Smith, and the new record from Chester County was copied from Porter. In the second edition of Britton's *Manual* of 1905 and in the third edition of two years later the record stood as in the *Manual* of 1901. In Linnaeus Fussell's *List of Delaware County Plants*, published in the Proceedings of the Delaware County Institute of Science in 1906, the plant received a recognized place in the flora, without comment. In

[1] Britton, Bull. Torr. Bot. Cl. xv. 103 (1888).

Gray's New Manual of 1908 the species was taken over, unchanged, except in a few details of description, from Watson and Coulter's edition; in the new edition of the *Illustrated Flora* there was no change from the first edition. In the latest publication where the species is cited, Norman Taylor's *Flora of the Vicinity of New York*, the occurrence is summarized thus: "Known in N. Am. only from a swamp in Delaware Co., Pa. and as reported also from Chester Co."

Our American sedge flora is so characteristically made up of indigenous species that there is a rather added attraction in introductions in this group. Probably no sedge, of the comparatively few foreign species accredited to this country, is less well known to American collectors than *Scirpus mucronatus;* yet for more than twenty-five years it has been a familiar name in all our manuals of the plants of the northeastern United States, nor has it ever failed to receive a place in various local floras covering southeastern Pennsylvania. Furthermore it has been over fifty years since this plant was first collected and almost equally long apparently since it was brought to the attention of the foremost botanists of the United States. But the point of chiefest interest to be noted is that all the material, with apparently a single exception, dates from the year of the original discovery, or a very few years later.

It will be recalled that species, especially introductions, which hold places in our manuals and floras upon the basis of old collections or records, coupled with little or no present day evidence, ofttimes prove to be worthy of critical attention. The reputed occurrence in America of *Scirpus mucronatus* is a case in point.

Unsatisfactory results, in investigating questionable records, seem to be the general rule: sometimes, in the absence of a substantiating specimen, an expression of opinion is the best that can be done; at other times even an apparently verifying specimen may leave one unconvinced. A specimen which solves the problem suggested by a record is unhappily none too common, but fortunately in the present case the evidence is clear and, moreover, ample.

The early history of this record to be gleaned from labels and notes accompanying the original specimens proves to be rather interesting, at least from a human standpoint, in showing through what vicissitudes a debatable record may pass. That, in its later history, in a succeeding generation of botanists, it may still rise to full credence and become traditionally authentic, is no less interesting as a human document.

For a long time there has been in the collection of the Philadelphia Botanical Club a specimen collected by Charles E. Smith in 1864 originally bearing the name "Scirpus mucronatus" and in a nearby corner of the label "fide Gray." At some later time the word "mucronatus" had been heavily crossed through and "debilis" written above. The locality, often so accurately designated by Smith is merely "(Del. Co.)." There is a single plant on the sheet of what appeared to be a rather immature, very ordinary-looking *Scirpus debilis*, with still erect involucral leaf. This specimen had failed to be definitely associated with the *mucronatus* record, in the absence of scepticism and especial interest. The copious notes often accompanying the C. E. Smith plants frequently bear critical comments by several botanists on the identity of the specimens, and often many changes of names. It was thus very easy to overlook this sheet on the presumption that there had been a mere casual misidentification.

Several years ago when a series of duplicates from the Aubrey H. Smith Herbarium was being obtained from the University of Pennsylvania specimens were secured bearing the label data: "Scirpus mucronatus L., Rhoads Swamp, Marple, Del. Co." There were a number of plants and loose culms, rather robust, and one almost 6 dm. tall, but in no manner, upon casual examination, differing from well developed *Scirpus debilis*. With the examination of this material an interest — and a suspicion — arose. A glance into Keller and Brown showed that while *Scirpus mucronatus* was recorded from Rhoads' Swamp on authority of Mr. Benjamin Smith, from exactly the same locality *S. debilis* was reported by Dr. Linnaeus Fussell!

Although all manual and flora references to this "Scirpus mucronatus" in Pennsylvania tacitly accepted it as a probable introduction from Europe, an interesting premonition of its true character is to be seen in an opinion originally voiced by Dr. Britton in his note, and no doubt suggested by C. E. Smith. "Mr. Smith has sent me the following note on the locality: 'It is in a small patch of *Sphagnum* in a field, 300 feet above tide water'," Dr. Britton quotes, and then says, "Mr. Martindale has it from the ballast grounds at Camden, but there seems no doubt that the Delaware County plant is a native."

The Porter Herbarium, with its wealth of Pennsylvania material, had only recently come to the Philadelphia Academy, and but little of it had yet been removed from the original covers and mounted. In the species cover of "Scirpus mucronatus" were found three sheets

of specimens bearing pertinently upon the records of this species. One sheet of two rather robust plants had been received from Dr. George Smith, as collected by himself in Delaware County, Pennsylvania in 1867. The label, in his own hand, reads "Scirpus debilis Pursh." This identification has been crossed out and in the hand of Dr. Britton has been written above, and initialed, "mucronatus, L. N. L. B." A second sheet contains several robust fruiting culms stuck through a slit label, bearing in C. E. Smith's hand the data: "Scirpus mucronatus, Del. Co., Pa." At the bottom of the label Porter has written, "A robust specimen of *Scirpus debilis*. T. C. P." and "mucronatus" has been crossed through. The third specimen consists of a rather robust clump in ripe fruit accompanied by Porter's label: "Scirpus debilis Pursh, Lincoln, Chester Co., Pa., Sept. 6, 1887." There seems to have been, first, a "?" pencilled after the determination, then "mucronatus?" written in pencil below the original name, and finally "mucronatus L." inked in ! Except for the rather noticeable robustness of these Porter plants they appeared to differ in no way from *Scirpus debilis*, and even in stature they were well within recognized limits of the species.

Examination of the Eurasian material of *Scirpus mucronatus* in the Academy Herbarium, the perusal of descriptions and following of keys in several European treatments was soon quite convincing that, although superficially somewhat resembling our American *S. debilis*, in technical characters this was a very different plant.

The Smiths — Charles, George and Aubrey — as well as a number of other Philadelphia botanists of their time were all closely associated, commonly collected specimens in duplicate and exchanged copiously. From former experience with records from these collectors it was felt that there would be within easy reach and personal examination in Philadelphia a still further series of specimens no doubt similar to the material at New York upon which Dr. Britton had based his record.

In the search for material verifying old records from the Philadelphia area the Herbarium of the University of Pennsylvania is one of the sources of first appeal. In the present case the evidence proved to be exceptionally complete and satisfactory. There are two sheets of plants here from the Aubrey H. Smith Herbarium bearing on the present question. The sheet of chief interest contains two specimens (which may have been one clump): one with about ten well developed culms, the other with two or three, some measuring 6 dm. or more in

height. They are robust plants with heads of about 5–15 spikelets, in ripe fruit. There are three tickets attached to this sheet, two of which are of interest. What is apparently the original collection label reads: "Scirpus mucronatus, Rhodes Swamp, Springfield, Del. Co., Sept. 18, 1864. Leidy, C. E. Smith, Geo. Smith, A. H. Smith, testes." This is written in a light ink in the hand of Aubrey Smith. In an upper corner of this ticket is pencilled "Gray says it is S. muc. Torrey says the same." Under which is written in a dark ink "(They are in error. A. H. S. Apr. 20, '68)" and under "Scirpus mucronatus" in the same dark ink appears inserted "This is S. debilis, Pursh. A. H. S." The second ticket is a long, critical note on the comparative characters of "the European plant" and "the American," in the characteristic hand and form of Charles E. Smith. There are sixteen lines of comparative description, in which he says, in small part, "The culm and involucre of our plant are slender . . . . and nearly terete — those of the European are stout, triangular." At the foot of the note he also has affirmed his conviction — "Scirpus debilis, Pursh. Not S. mucronatus." The other sheet bears a label in Aubrey Smith's hand, "Scirpus debilis, Rhodes Swamp, Del. Co." and a note, "This plant differs much from the plant usually called by this name — it is much stouter with more numerous spikes — has few or no leaves and has the involucre bent to one side." His description accurately fits the robust plant on the sheet, and his idea of characteristic *debilis* is readily explained, for the most part, by the other specimens he had — material from Upper Darby and from Lancaster County being of plants much smaller and more slender, with heads of fewer spikelets and the involucral leaves mostly erect. (These are not *Scirpus Smithii*, however, which is a quite distinct species.)

The Herbarium of the Delaware County Institute of Science at Media, Pennsylvania contains many valuable specimens bearing on local records. Here there is a sheet of *Scirpus debilis* from Rhoads' Swamp originally bearing the name "Scirpus mucronatus??" Its identity had already been the source of considerable divergence of opinion before it came under my own hand, for its original identification with two interrogation points had been corrected to "debilis," which in its turn had been discredited and "mucronatus" restored.

But despite the apparent conclusiveness of all this Philadelphia evidence, it is not to be forgotten that the record of 1889 technically rests upon the material at New York seen by Dr. Britton. He has

written that this consists of a specimen collected in Delaware County in 1864 by Mr. C. E. Smith, in the Columbia College Herbarium, and a specimen collected by Dr. George Smith in 1867, received through Professor Porter. (These are undoubtedly duplicates of material in the C. E. Smith Herbarium and the Porter Herbarium, respectively.) Dr. Britton has kindly examined these New York specimens very critically and he is agreed that upon the basis of this material *Scirpus mucronatus* must be excluded from the American flora.

In the Gray Herbarium, Prof. Fernald has informed me, upon my inquiry, that no material was to be found under the name "Scirpus mucronatus," but further search in the herbarium finally disclosed a single sheet of C. E. Smith's material representing the record. This is labelled "Delaware County, Aug. 1864" (and is no doubt similar to the specimens at New York and Philadelphia). Critical examination by Prof. Fernald showed absolutely no difference between this material and that of authentic *S. debilis* sent out by Smith in 1865. In the search for this material an interesting fact came to light, in that — quoting from Prof. Fernald's letter — "the sheet long ago had been transferred to the *S. debilis* cover by Dr. Gray, who had marked on the sheet 'S. debilis, true.'"

It would seem that the opinions of Gray and of Torrey must have been obtained by the Philadelphia collectors not long after the discovery of the plant in 1864 — possibly even the same or the following year. There is no indication when C. E. Smith satisfied himself that this plant was *S. debilis* but A. H. Smith, it will be remembered, had dated his like opinion April 20, 1868. It is impossible to say just how soon after 1864 Gray reached this same conclusion — and rectified his former opinion — but there is probably to be seen a real connection between the correct identification of the plant and the fact that "Scirpus mucronatus" is *not* recorded in the 1867 edition of Gray's *Manual*.

How did the plant come to be included by Watson in 1890 in his edition of the *Manual?* — is the question that at once comes to mind. To Prof. Fernald's interest and investigation I am indebted for the information that the copy of the fifth edition which was annotated by Watson when revising the manual, before the publication of Edition 6, contains the note in his own hand, "S. mucronatus, L. See T. B. 15. 103" — which refers to the record in the Bulletin of the Torrey Botanical Club of 1888. This is indicative of Watson having accepted

the plant upon the basis of the published record, without having seen material — the specimen in the cover of *Scirpus debilis* having long before this time become completely dissociated from the "Scirpus mucronatus" collection.[1]

On one of the Charles E. Smith labels is the memo, "See Gray under S. Torreyi." In the first edition of Gray's *Manual* of 1848, and the succeeding early editions, following *Scirpus Torreyi* is the note: "S. mucronatus, L., should it ever be found in the country, will be known by its leafless sheaths, conglomerate head of many spikes, stout involucral leaf bent to one side, &c., &c." — no doubt inserted because of the reference, immediately above, to "S. mucronatus, Pursh? Torr. Fl. N. Y." in the synonymy of *S. Torreyi*. To this somewhat unfortunate note — or rather, perhaps, the unfortunate interpretation of it — is without doubt due the suggestion in the minds of the original collectors that the Rhoads' Swamp plant was to be identified with *Scirpus mucronatus*. Whether the elimination of this note in 1867 from the fifth edition of the *Manual* was owing to a realization of its somewhat misleading character — recognized through the matter of the Smiths' "Scirpus mucronatus" from Delaware County — cannot be asserted positively, but would seem not unlikely. It must certainly have been connected with some radical change of ideas about the species.

The assertion in the latter part of Dr. Britton's note on *Scirpus mucronatus* that "Mr. Martindale has it from the ballast grounds at Camden" was thought worthy of investigation. So many strange plants have been associated with the old ballast grounds that this statement suggested the possibility of a veritable occurrence of this species in America — interesting at least historically. Search in the Martindale Herbarium at the Philadelphia College of Pharmacy showed a specimen bearing the label: "Scirpus debilis Pursh = S. supinus, Ballast, Camden, N. J., June, 1877, Isaac C. Martindale." The identification has been corrected to *S. mucronatus* in the hand of Dr. Britton. The material, a single, whole individual, clean and

[1] For this reason, in the preparation of *Gray's New Manual*, no specimen was found under *S. mucronatus*, the species was left in the status of Watson's treatment, and for want of material remained unillustrated. In connection with illustrations, it may be noted that the line drawing in the two editions of Britton and Brown's *Illustrated Flora* is obviously not an original drawing made from the Delaware County material. It accurately represents *Scirpus mucronatus* L. however, and was doubtless made from Old World material, if not copied from some European source.

excellently prepared, shows a robust plant in mature fruit, with culms very palpably triangular and involucral leaves divergent — *Scirpus mucronatus*, perfectly characteristic in every way.

There is no material of this collection in the Herbarium of the Philadelphia Academy (where there are many Martindale duplicates), at the University of Pennsylvania, or presumably at New York or Cambridge, so it may be safely concluded that this occurrence of *S. mucronatus* at Camden was probably even more casual than the generality of ballast plants — many of which, although persisting only a season or two, at least originally occurred in such numbers of individuals as to be well, if not overly, represented in many herbariums. *Scirpus mucronatus* at Camden may be noted as a matter of historical record, but thus only.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

NOTES ON THE CLAYTON HERBARIUM.

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(*Continued from page 28.*)

4. *Dioscorea villosa* L. Sp. ii. 1033 (1753).[1] In his recent revision of North American *Dioscorea* Bartlett (Bull. Bur. Pl. Indus. No. 189. 6–10, 15 (1910)) has displaced this name by *D. paniculata* Michx. on grounds which do not seem to me sufficient for the overthrow of the Linnaean name. Although the Linnaean species is certainly a complex, as Bartlett has clearly pointed out, it is by no means more likely to be a "source of permanent error and confusion" than are scores of Linnaean names today kept up by practically all authors. The only element in the published description determinable in the light of present-day knowledge is Clayton's number 94, which is *D. paniculata*

[1] *Dioscorea villosa*.

"7. DIOSCOREA foliis cordatis alternis oppositisque, caule laevi.

"Dioscorea foliis cordatis acuminatis: nervis lateralibus ad medium folii terminatis. *Gron. virg.* 121.

"Bryoniae similis floridana, muscosis floribus quernis, folliis subtus lanugine villosis: medio nervo in spinulam abeunte. *Pluk. alm.* 46. *t.* 375. *f.* 5.

"*Habitat in* Virginia, Florida."